



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,517	09/18/2001	Cyrus E. Tabery	G0228	8552

7590 11/24/2006

Himanshu S. Amin  
Amin & Turocy, LLP  
National City Center  
1900 E. 9th Street, 24th floor  
Cleveland, OH 44114

EXAMINER
----------

KACKAR, RAM N

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**MAILED**  
NOV 24 2006  
**GROUP 1-00**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/955,517  
Filing Date: September 18, 2001  
Appellant(s): TABERY ET AL.

---

Marisa J. Zink  
For Appellant

**EXAMINER'S ANSWER**

Art Unit: 1763

This is in response to the appeal brief filed 9/22/2006 appealing from the Office action mailed 5/4/2006.

**(1) Real party in interest**

A statement identifying the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct except the following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

**WITHDRAWN REJECTIONS**

The grounds of rejection withdrawn by the examiner are Claims 1-2, 4-5, 10-12, 25 and 26 rejection under 35 U.S.C. 102(e) as being anticipated by Jin et al (US PUB 20020028392) and Claims 9 rejection under 35 U.S.C. 103(a) as being unpatentable over Jin et al (US PUB 20020028392) in view of Niu et al (US PUB 20020131055).

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6562248

Subramanian et al

5-2003

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

Art Unit: 1763

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**1. Claims 1-2, 4-5, 9-12, 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Subramanian et al (US Patent No. 6,562,248 B1).**

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Subramanian et al teach (Fig. 1) a system for creating a complimentary phase shift mask comprising:

a mask creating component (etching system) 16 operable to create features 12 in a mask 14;

a measurement component 18 operable to measure the shape, depth and/or width of the apertures 12 created in the mask 14, the measurement component 18 includes a scatterometry system for detecting the reflected and/or diffracted light; and a control system 17 operatively coupled to the etching system 16 and the measurement component 18, the control system 7 is programmed and/or configured to control the etching system 16 in accordance with the measured

Art Unit: 1763

characteristic of the features (column 7, line 10 through column 8, line 48, column 9, line 11 through column 10, line 65). (See Fig 7 and its description in Col 9 lines 62 to Col 10 line 48).

It is inherent that the measuring system could be used to improve quality control by measuring critical dimensions.

Further regarding claims 1, 25 and 26: the complimentary phase shift mask and alternating aperture phase shift mask are considered similar as far as the apparatus to fabricate them is concerned as the disclosed apparatus is inherently capable of being used for creating either of the phase shift masks.

Still further, using the scatterometry system to monitor critical dimensions like depth, etch and shape either in-situ or ex-situ is an intended use. This use does not further define or limit the apparatus.

**(10) Response to Argument**

These claims are directed to an apparatus to monitor and control the fabrication of an alternating phase shift mask. The components of an apparatus to do this are described in the specification as follows:

a driving component (Controller to control the fabrication process as indicated at Fig 7-760) that controls the one or more mask creating components;

an emitting component (762) that directs light on to at least one of the features on the phase shift mask; and an analysis component that measures one or more feature parameters based on a light reflected and/or refracted from the one or more features via a scatterometry system (750).

The specification is directed not only to an apparatus for fabricating an alternating phase shift mask but also to the process of fabricating this and the process of using it for patterning features on a substrate. It is important to note that out of these three distinct inventions, the claims are directed only to the apparatus for fabricating the mask.

The claims recite these components broadly in claim 1 and more specifically in claims 25 and 26.

The essential requirements of the process to fabricate an alternating phase shift mask are etching of openings (aperture) while monitoring their width, depth and shape by scatterometry and controlling etch parameters to achieve those parameters (See paragraph 03 of Pub 2003/0052084).

It is noted that essential requirements for fabricating complementary phase shift mask are no different (See Subramanian - Col 1 lines 42-49).

Art Unit: 1763

It is however, noted that the rejection is not based on the fact that processes are similar. The rejection is based on the fact that the apparatus disclosed by the prior art reference teaches all the limitations claimed.

Applicant argues that Subramanian et al disclose a system to fabricate complimentary phase shift mask and do not disclose a system to fabricate alternating phase shift mask. Applicant thus dwells on the function and not on the structure of the claimed apparatus.

It has been held that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danley*, 120 USPQ 528, 531, (CCPQ 1959); "Apparatus claims cover what a device is, not what a device does" (Emphasis in original) *Hewlett-Packard Co. V. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1 528 (Fed. Cir. 1990); and a claim containing a (recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Also see MPEP 2114.

Applicant's argument that a complimentary phase shift mask is different from an alternating phase shift mask may be true but it does not point to any distinction in the disclosed prior art apparatus as compared to claimed apparatus.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.



Art Unit: 1763

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

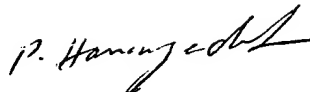
Ram Kackar



Primary Examiner AU 1763

Conferees:

Parviz Hassanzadeh SPE AU 1763



Patrick Ryan SPE AU 1745

